METHOD AND APPARATUS FOR COMPRESSING AN INPUT STRING TO PROVIDE AN EQUIVALENT DECOMPRESSED OUTPUT STRING

5   **ABSTRACT**

A method and apparatus are disclosed that compress an input string to an equivalent word relative to a noncommutation graph. The disclosed compression system compresses an input string in a manner that an equivalent string is produced upon

10   decompression. The disclosed compression algorithms are based upon normal forms. First, a normal form of the interchange class is produced containing the source output string. Thereafter, a grammar-based lossless data compression scheme (or another compression scheme) is applied to the normal form. Upon decompression, the compressed string produces an equivalent string. A normal form generation process is

15   employed to compute the lexicographic normal form or the Foata normal form of an interchange class from one of its members, using only a single pass over the data.

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